a substantially solid porous sleeve faced in parallel with the shaft forming a bearing portion with a minimum gap provided therebetween; and

magnetic fluid oil impregnated into the gap and the porous sleeve,

wherein a ferromagnetic substance included in the shaft is locally magnetized so as to create magnetic flux density gradient that is set at a maximum along the bearing portion of the porous sleeve and decreases gradually as it stays away therefrom,

wherein a boundary of a magnetization-varying portion of the shaft is aligned with a line of a flow of the magnetic fluid oil occurring with rotary motion of the sleeve or the shaft, and

wherein the bearing portion has a groove for generating dynamic pressure formed on a surface of the shaft or the sleeve, and a magnetization-varying portion is arranged in a position of the shaft that corresponds to the groove.

6. (Twice Amended) A magnetic fluid bearing motor provided with a bearing assembly, the bearing assembly comprising:

a substantially solid porous sleeve including a ferromagnetic material;

a shaft faced in parallel with the sleeve with a bearing portion with a minimum gap provided therebetween; and

magnetic fluid oil impregnated into the gap and the porous sleeve;

wherein a surface of the bearing portion of the sleeve is locally magnetized so as to create magnetic flux density gradient that is set at a maximum along the bearing portion of the porous sleeve and decreases gradually as it stays away therefrom,

wherein a boundary of a magnetization-varying portion remaining on the surface of the bearing portion of the sleeve is aligned with a line of a flow of the magnetic fluid oil that occurs with rotary motion of the sleeve or the shaft, and

wherein the bearing portion has a groove for generating dynamic pressure formed on a surface of the shaft or the sleeve, and a magnetization-varying portion is arranged in a position of the surface of the bearing portion of the sleeve that corresponds to the groove.